

## THE HOUSEHOLD SURVEY PROGRAM: 1995

### Sampling

Two major principles underlie all sample design. The first is the desire to avoid bias in the selection procedure; secondly to achieve the maximum precision for a given outlay of resources. Bias in the selection can arise in:

1. If the sampling is done by a non-random method, which generally means that the selection is consciously or unconsciously influenced by human choice;
2. If the sampling frame (list, index or other population record) which serves as the basis for selection does not cover the population adequately, completely or accurately;
3. If some sections of the population are impossible to find or refuse to co-operate.

Any of these factors will cause systematic and non-compensating errors that are not eliminated or reduced by an increase in sample size. If the sample is taken from an inadequate list, no increase in size will correct its unrepresentativeness or eliminate the bias in the characteristics of an infinite number of samples so selected.

The sampling method used in the 1995 household survey project is called **Systematic Sampling**. In general, this type of sampling differs from simple random sampling in that it does not give all possible samples of size  $n$  from the population size  $N$  an equal chance of selection. In systematic sampling, once the sampling fraction is determined, the random selection of the starting point determines the whole sample, i.e. if the number 5 was selected with an interval of 5, then 5, 10, 15, 20...automatically follows. In systematic sampling, the selection of one sample member is dependent on the selection of a previous one, while with simple random sampling from a large population the selections are virtually independent of each other. Systematic sampling produces a more even spread of the sample over the population list than does simple random sampling. Usually this will lead to greater geographic coverage.

In April of 1994, a team of about 10-map verifier was sent out to conduct map spotting and area verification for the preparation for the 1995 household survey enumeration. Their jobs were to canvass the area and map spot all housing units within the given maps. They were instructed to add new houses and delete any residential structure boxes that no longer exist. This work was done in collaboration with the Office of Samoan Affairs and the Pulenu'u of each village.

From the map verification process, all identified housing units were serialized and given a unique number. The housing units were numbered serpentine beginning from starting point (usually at one end of a village) and moving to the other end of the village. Geography codes used in the 1990 enumeration were used again for the 1995 household survey project. For instance, Address Register Areas or ARA and Block Numbers were the same as in the 1990 census. The geography data will provide a comparable geographic listing of housing units with the regular census program. However, the lowest geographic level used for tabulation and dissemination of data is restricted to districts only.

## Sample weights

A total of 8,967 housing units were listed in the map verification process. After enumeration, a map verification error listing was maintained to estimate non-sampling error from the map project. Sampling selection as stated was systematically done without replacement and after enumeration, only 1,713 housing units were received and processed. Again an adjustment factor was calculated to correct for non-sampling errors from enumeration. Different weights were used for the long form and Weekly Diary. For instance, Population and Housing, Expenditure, Emigration have a weight of 5.2 while Weekly Diary (collected from every other household, which means only 10 percent of households should respond to weekly diary), has a different weight of 11.8 applied for expanding the sample to the 100 percent level. The non-response in Weekly Diary was about 15 percent and thus the weight was adjusted accordingly.

The following calculations provide the adjusted weight factor used for the expansion of the sample to the 100 percent level:

Total Adjusted Housing Unit List:	8,967
Total Selected Housing Units:	1,776
Total Enumerated Housing Units:	1,713
Adjustment Factor:	1.04
Adjusted Weight:	5.2

Table of Weights	Housing Units	Respondent	Weight
Housing Units Selected	1,776	1,713	5.2
Occupied		1,609	
Population		1,713	5.2
Expenditure		1,020	5.2
Emigration		85	5.2
Weekly Diary	804	680	11.8